

REMARKS

Claims 1, 3-15, 17-20, 22-26, and 28-32 were pending and rejected. In response, claims 1, 3-4, 10, 14, 17, 20, 22-23, 26, 28-29, and 32 are amended and claim 33 is added. Claims 1, 3-15, 17-20, 22-26, and 28-33 are pending upon entry of this amendment. These changes are believed not to introduce new matter, and their entry is respectfully requested. In view of the Amendments herein and the Remarks that follow, Applicant respectfully requests that Examiner reconsider all outstanding objections and rejections, and withdraw them.

Double Patenting

In the Office Action, Examiner has provisionally rejected claims 1, 20, and 26 on the grounds of nonstatutory obviousness-type double patenting over claims 9 and 37 of copending application 10/642,355 in view of U.S. Patent 6,205,558 to Sobel. Applicant requests that this rejection be held in abeyance until the other rejections have been withdrawn, at which time a terminal disclaimer may be filed if necessary.

Response to Rejection Under 35 USC § 112, Paragraph 2

Claims 14-16 were rejected under 35 USC § 112, ¶ 2 as allegedly being indefinite. This rejection is respectfully traversed. Claim 14 recites “... the rollback manager reading the reboot indicator, the reading performed **after a reboot of the computer**, and the reading performed **before a loading of an operating system.**” Support in the specification is found, for example on page 8, lines 1-4, which states “... the rollback manager 101 reads the reboot indicator 111 after a reboot of the computer 103, before the booting of the operating system.”

Applicant submits that claim 14 is definite. One of ordinary skill in the art understands that the reading is performed after the computer is rebooted (i.e., the computer is restarted or reset) but before the operating system is loaded (i.e., the operating system is booted) as part of the boot process. The period between the reboot of the computer and the loading of

the operating system is definite, and the claim distinctly defines the *metes and bounds* of the claimed subject matter.

Examiner seems to suggest that the claim is indefinite because it is allegedly unclear that the loading of the operating system is connected to a particular reboot of the computer. However, one of ordinary skill in the art would understand that the claim is referring to a reboot of the computer and the loading of an operating system in the same boot process. Applicants submit that the reading of the reboot indicator, as claimed, occurs during a clearly specified period of time, and that claim 14 and dependent claim 15 are definite under 35 USC § 112, ¶ 2.

Response to Rejection Under 35 USC 103(a)

Claims 1, 3-15, 17-20, 22-26, and 28-32 were rejected under 35 USC § 103(a) as allegedly being unpatentable over Sobel, U.S. Patent No. 6,205,558. This rejection is respectfully traversed.

Claim 1, as amended, recites a computer implemented method for rolling back a system state after a modification failure, the method comprising the steps of:

a rollback manager creating a restore point on a computer;
the rollback manager storing a reboot indicator in non-revertible storage;
the rollback manager monitoring the reboot indicator during deployment of a modification, the monitoring comprising:
 the rollback manager detecting a reboot of the computer, the reboot having occurred during the deployment of the modification; and
 the rollback manager **determining based at least in part on the reboot indicator whether the reboot was expected or whether the reboot was unexpected**;
responsive at least in part to determining that at least one unexpected reboot occurred during the deployment of the modification, the rollback manager rolling back the system state of the computer according to the restore point; and
responsive at least in part to determining that no unexpected reboot occurred during the deployment of the modification, the

rollback manager indicating that the deployment of the modification was successful.

(emphasis added)

As can be seen, the claim recites creating a restore point on a computer and storing a reboot indicator in non-revertible storage. The reboot indicator is monitored to detect a reboot that occurs during a deployment of a modification. Based at least in part on the reboot indicator, it is determined whether the reboot was expected or unexpected. Responsive to determining that at least one unexpected reboot occurred, the system state of the computer is rolled back according to the restore point. Responsive at least in part to determining that no unexpected reboot occurred during the deployment of the modification, an indication is given that the modification was successful. The claimed invention can beneficially be used to detect an unexpected reboot during deployment of a modification that may result in the computer being left in an unknown or undesired system state. The system state of the computer can then be rolled back according to the restore point. Support in the specification is found, for example, on page 6, line 6 to page 9, line 8 and page 12, lines 1-2.

Claims 20 and 26 contain similar language to claim 1, and all arguments presented below regarding claim 1 equally apply to these claims.

Claim 1 is not obvious in view of Sobel. Sobel discloses a system for modifying a File Allocation Table (FAT) of a file system. In Sobel, the Master Boot Record (MBR) 110 is temporarily replaced with a recovery program 130 while the FAT is being modified. Because of this, if the computer reboots as a result of a failed modification of the FAT, the recovery program 130 will run. The recovery program can then take various actions, such as re-attempting the modification or restoring the original version of the FAT.

While Sobel discloses restoring the FAT to the original version upon a reboot, Sobel does not disclose determining whether the reboot was expected or unexpected based at least in

part on a reboot indicator and rolling back the system state as a result of an unexpected reboot. Sobel does not distinguish between expected and unexpected reboots. The system in Sobel always runs the recovery program 130 if a reboot occurs during a modification (Sobel, col. 5, lines 30-32).

Accordingly, Sobel does not disclose “the rollback manager determining based at least in part on the reboot indicator whether the reboot was expected or whether the reboot was unexpected.” The Examiner cites step 408 of FIG. 4 of Sobel as disclosing this element. However, step 408 merely discloses determining whether the replacement of the old FAT with the new FAT was successful. In fact, step 408 occurs before the reboot (step 414) and therefore can not be determining anything about the reboot. Sobel does not disclose any step after the reboot step 414 that determines whether the reboot was expected or whether the reboot was unexpected. Rather, after the reboot, Sobel again attempts to replace the FAT (step 416) and determines again whether the replacement was successful (step 418). Note that the question of whether the replacement was successful is independent of the question of whether the reboot was expected or unexpected.

Further, Sobel does not disclose “responsive at least in part to determining that no unexpected reboot occurred during the deployment of the modification, the rollback manager indicating that the deployment of the modification was successful.” In Sobel, as mentioned above, any reboot occurring during a modification of the FAT is considered a failed modification. Thus, Sobel does not determine whether a reboot that occurred during a deployment of a modification was expected or unexpected, and does not declare that the deployment was successful if the reboot was not unexpected.

In the Final Office Action dated March 14, 2008, Examiner responded to the above arguments. Examiner states that Sobel discloses an expected reboot as the “Yes” branch of step 408 in FIG. 4. However, as mentioned above, step 408 occurs before the system of Sobel

is rebooted in step 414 of FIG. 5, and therefore it is not possible for step 408 to determine if the reboot was expected or unexpected. Step 408 merely determines whether the replacement of the FAT was successful. The computer is then rebooted if the replacement was unsuccessful. Similarly, no reboot occurs in the “Yes” branch of step 408. Rather, if the replacement of the FAT was determined to be successful in step 408, the recovery program is replaced with the original MBR (step 410) and the data area is cleaned up (step 412).

Based on the above remarks, Applicants respectfully submit that for at least these reasons a person of ordinary skill in the art would not find invention as defined in claims 1, 20, and 26 to be obvious over the cited reference. Therefore, Applicant respectfully requests that Examiner reconsider the rejection and withdraw it. As to dependent claims, because claims 3-19, 22-25, and 28-31 variously depend on claims 1, 20, and 26, all arguments advanced above with respect to claims 1, 20, and 26 are hereby incorporated so as to apply to these dependent claims.

Dependent claim 4 recites “... the rollback manager re-auditing the computer and comparing re-audit information to the stored initial audit information; ...” Claims 23 and 29 contain similar language. As admitted by Examiner on page 9 of the Final Office Action, this element is not disclosed by Sobel. Examiner further addresses this element in remarks regarding claim 3, stating that Sobel discloses comparing a previous copy of a FAT system with a recently installed FAT system to determine whether the recently installed FAT is valid. However, Sobel does not disclose this; rather, Sobel independently determines if the new FAT is valid (the methods of this determination are not discussed in Sobel). It would not make sense for Sobel to determine that a new FAT is valid merely because it is different from the old, invalid FAT. Even if Sobel disclosed this, the FAT system of Sobel does not include the audit information specified in claim 3 of the claimed invention. As a result, a person of ordinary

skill in the art would not find invention as defined in claims 4, 23, and 29 to be obvious over the cited reference for at least this reason.

Independent claim 32 recites a computer implemented method for auditing a computer system state, the method comprising the steps of:

a rollback manager auditing the computer and storing in non-revertible storage information identifying at least one item from a group of items consisting of:
at least one **currently executing system process**;
at least one **currently executing user process**; and
at least one **currently open listening port**.
(emphasis added)

As can be seen, the claim recites auditing a computer and storing information identifying a currently executing system process, a currently executing user process, or a currently open listening port. Such an audit can be beneficially used to determine if a modification was successful. For example, audit information stored prior to a modification can be compared to the system state after a modification to determine if the modification was successful. Support in the specification is found, for example, on page 9, line 20 to page 10, line 13.

Dependent claims 3, 22, and 28 contain similar language to claim 32, and all arguments presented below regarding claim 32 equally apply to these claims.

Sobel does not mention any of a system process, a user process, or an open listening port. As a result, Sobel does not disclose storing information about any of these. In rejecting claim 32, Examiner refers to the rejection of claim 3, where Sobel, col. 4, lines 26-37, is cited as disclosing storing information about at least one currently executing user process. However, this portion of Sobel merely mentions that a user can reboot the computer upon a failed modification attempt. Examiner further mentions that “event based user input reads on user process.” However, the Examiner misunderstands the meaning of the term “process” in the claimed invention. The words of a claim must be given their “plain meaning” unless such

meaning is inconsistent with the specification, where “plain meaning” refers to the ordinary and customary meaning given to the term by those of ordinary skill in the art. See MPEP 2111.01. A “process” is a term known to a person of ordinary skill in the art and refers to an instance of a computer program that is being sequentially executed on a computer. A “user process” is a process associated with a user of the computer. Sobel does not disclose storing information identifying a currently executing user process as in the claimed invention.

Further, Sobel does not disclose storing information identifying a currently open listening port or a system process. For this element, Examiner states that an event leading to a system reboot or user command discloses a listening port, and the Examiner provides the example of listening for a hardware-based interrupt corresponding to a reboot. This example is not disclosed in Sobel, but even if this interpretation were correct, Sobel further does not disclose **storing information identifying** a currently open listening port or a system process.

Based on the above remarks, Applicants respectfully submit that for at least these reasons a person of ordinary skill in the art would not find invention as defined in claims 3, 22, 28, and 32 to be obvious over the cited reference. Therefore, Applicant respectfully requests that Examiner reconsider the rejection and withdraw it.

Conclusion

Accordingly, Applicant respectfully requests allowance of this application. The Examiner is invited to contact the undersigned by telephone to advance the prosecution of this case.

Respectfully submitted,
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